VOLUNTARY MOBILE EMISSION SOURCE PROGRAM (VMEP)
STATE IMPLEMENTATION PLAN (SIP) ASSESSMENT

2004 REGIONAL SWITCHER SURVEY

FINAL REPORT
APPENDIX A

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EXECUTIVE SUMMARY

INTRODUCTION

This report presents the methodology and results of a survey of randomly selected commuters in the Atlanta 13-county non-attainment area[1]. The survey assesses travel and emission reductions from commute behavior changes that could be credited to Voluntary Mobile Source Emission Reduction Programs (VMEPs). VMEPs include transportation demand management (TDM) programs that encourage commuters and other travelers to voluntarily use alternative modes of transportation, an action that can help improve traffic congestion and air quality in a region. Atlanta's VMEP is a comprehensive TDM program that includes organizations such as The Clean Air Campaign, Transportation Management Associations (TMAs), and the Atlanta Regional Commission.

The Center for Transportation and the Environment (CTE) and its project team (CTE measurement team) conducted the survey on behalf of the Georgia Department of Transportation (GDOT) and the Georgia Department of Natural Resources, Environmental Protection Division (EPD). EPD estimated that 1.5% of the travel and emission reductions needed to bring the non-attainment area into compliance with federal air quality standards would come from VMEPs.[2]. The VMEP estimate represents a daily reduction of 4.4 million vehicle miles, 4.28 tons of Oxides of Nitrogen (NO_x), and 6.51 tons of Volatile Organic Compounds (VOC) to be achieved by 2004, the air quality attainment or compliance year. The VMEP targets are presented by EPD in the State Implementation (SIP) for the Atlanta region.

The survey results presented in this report are of the second survey conducted by the CTE measurement team in 2004 to assess travel and emission reductions from VMEPs. The first survey, conducted in 2002 and two years before the SIP attainment year, served as a test to determine if a regional survey could be used to assess travel and emission reductions from VMEPs.

VMEP TRAVEL AND EMISSION REDUCTION ESTIMATES

Similar to the 2002 assessment, the measurement team used a regional transportation survey (Regional Switcher Survey) to assess the commute changes. The survey involved interviewing Atlanta area commuters to estimate the percentage who had made travel changes since 1990, the SIP baseline year. Based on the experiences gained from the 2002 assessment, the measurement team focused on two evaluation approaches for the 2004 assessment, both of which are briefly described below and in more detail on the subsequent pages.

All Commute Changes During the Evaluation Period

The first approach accounts for the full range of commute change impacts that occurred in the region since the SIP baseline year (1990), providing a true regional assessment of behavior change. It counts both commute changes that reduce weekly vehicle trips (e.g., single occupant vehicle (SOV) to transit or carpool to transit) and commute changes that increase weekly vehicle trips (e.g., transit to carpool or carpool to SOV). It does not, however, consider the motivation for commute changes, nor does it consider if VMEPs influenced the changes. Travel and emission reduction estimates from this approach fall short of the VMEP targets. Daily travel reductions range from 913,200 to 1.2 million vehicle miles

[1] Thirteen (13) county non-attainment area includes Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Henry, Paulding, and Rockdale counties.

[2] USEPA allows up to three percent of the necessary emission reduction amount to be achieved through Voluntary Mobile Source Emission Reduction Programs (VMEP).

per day, while daily emission reductions range from .929 to 1.25 tons per day for NO_x and from 1.26 to 1.52 tons per day for VOC.

Alternative Mode Changes and Attribution to VMEPs

The second approach estimates impacts for commute changes associated with alternative mode switching. This approach makes the assumption that switches to drive alone should not be counted because they likely were not the result of VMEPs, but rather the result of changes in commuters' personal circumstances (e.g., changing jobs) or other personal travel needs or preferences. Because it is possible some switches to alternative modes were motivated by non-VMEP factors, this approach takes the further step of examining why commuters made alternative mode switches and the potential influence of VMEPs on the commute changes.

This approach considered two tiers of possible VMEP influence. Tier One influences account for the influences from direct receipt of or contact with a VMEP service or program (e.g., transit subsidy, employer commute assistance). Tier Two influences account for the potential influences that might be occurring due to a VMEP message (e.g., teleworking saves time, carpooling saves money) disseminated by VMEP partners. Tier Two also includes actions that might have been indirectly influenced by a VMEP service or program (e.g., family member, friend, coworker wanted to carpool).

Travel and emission reduction results for this approach also fall short of the VMEP targets, but are much closer than the first approach described above. Daily travel reductions range from 3.1 million to 3.2 million vehicle miles per day, while daily emission reductions range from 3.18 to 3.24 tons per day for NO_x and from 3.85 to 3.93 tons per day for VOC.

While this approach captures many of the impacts resulting from VMEPs, it may exclude some of the subconscious effects or indirect impacts of VMEPs that are not immediately evident or obvious to individuals making commute changes. It is also possible that some impacts counted under Tier Two could have no connection with the VMEPs at all. Finally, some of the Tier One and Tier Two influences may already be included in the regional travel demand model for the region, and thus might already be counted in the VMEP target baseline assessment.

FY2004 Atlanta TDM Program Evaluation

In addition to the VMEP assessment conducted through the Regional Switcher Survey, GDOT sponsors an annual evaluation to measure travel and emission reductions for commuters who participate in TDM programs that receive Congestion Mitigation and Air Quality Improvement (CMAQ) funds. While the annual Atlanta TDM Program evaluation is not conducted for the VMEP target assessment specifically, the measurement team has included it in this report as support data for the Regional Switcher Survey commute travel and emission reduction findings.

The fiscal year 2004 (FY2004) evaluation included commuter related travel and emission reductions from 1-87-RIDEFIND participants, vanpool riders, monthly discount transit pass recipients, and The Clean Air Campaign Cash for Commuter's program participants. The travel and emission reductions include commuters who began using alternative modes or increased their frequency of alternative mode use during FY2004 and commuters who began using alternative modes prior to FY2004 and maintained use of the alternative modes during the year. The travel and emission reductions for the annual Atlanta TDM Program evaluation, which include reductions in 41,021 vehicle trips, 885,791 vehicle miles, .7219 tons per day of NO_x, and .8755 tons per day of VOC, are also lower than the projected VMEP targets.

It is important to note, however, that the Atlanta TDM Program evaluation includes only the programs that can be validated with established data sources. As such, the evaluation represents a conservative, lower bound estimate of commute related travel and emission reductions. In addition, the evaluation represents alternative mode use over a shorter time period than the VMEP target evaluation period in the SIP (1990 baseline).

SECTION 1 OVERVIEW

PURPOSE OF THE REPORT

In fiscal year 2001 the measurement team began developing a methodology to assess the 13-county metropolitan Atlanta area's fulfillment of the 2004 travel and emission reduction goals established in the State Implementation Plan (SIP) for Voluntary Mobile Source Emission Reduction Programs (VMEP). The Center for Transportation and the Environment, along with a team of consultants, developed the methodology on behalf of the Georgia Department of Transportation (GDOT) and the Georgia Department of Natural Resources, Environmental Protection Division (EPD).

The U.S. Environmental Protection Agency (USEPA) allows states or metropolitan areas to project in a SIP that up to 3% of the necessary emission reductions will be achieved through VMEPs. VMEPs are programs that encourage commuters and others to voluntarily use alternative modes of transportation for their travel, an action that can help reduce traffic congestion and improve air quality in a region. EPD estimated that 1.5% of the emission reductions needed in the SIP for the Atlanta region for 2004, the attainment year, would come from voluntary programs. This reduction represents 4.28 tons of NO_x per day and 6.51 tons of VOC, to be achieved by reducing 4.4 million miles of travel.

In 2002, the measurement team developed a test methodology using a regional transportation survey to assess attainment of the VMEP target. The survey, referred to as the Regional Switcher Survey, involved surveying a randomly selected sample of commuters in the 13-county region who had made certain types of commute chances since 1990, the baseline year used by EPD for the SIP VMEP estimate.

The objective of the survey was to determine the percentage of commuters who had made a commute change to an alternative mode that reduced their number of weekly commute trips and to collect data from a sample of these commuters about these changes. These commuters were defined as "switchers." Survey interviewers carefully screened randomly selected commuters in the region to identify 400 switchers. Switchers were then asked more detailed questions about their travel patterns before and after the changes to collect data needed to calculate the vehicle miles and emission reductions resulting from their commute changes. Using the findings, the measurement team developed four approaches for assessing travel and air quality emissions and also made several recommendations for improving the 2002 methodology.

In 2004, the measurement team implemented the recommended changes and conducted a second Regional Switcher Survey. This report presents the findings of the 2004 survey.

ORGANIZATION OF THE REPORT

The report is divided into five sections.

- Section 1 – Purpose and organization of the report
- Section 2 – Description of the survey and sampling methodology
- Section 3 – Description of survey background and overview of survey sections
- Section 4 – Results of the survey respondents
- Section 5 – Travel and air quality emission reductions

The report also includes the following appendices:

- Appendix A-1 - Survey Questionnaire
- Appendix A-2 - Travel and Emission Calculation Spreadsheets

SECTION 2 DATA COLLECTION AND METHODOLOGY

QUESTIONNAIRE DEVELOPMENT

The measurement team revised the 2002 regional transportation survey based on the recommended revisions described in Section 3 of this report. After seeking input from GDOT and EPD on the revised survey, CIC Research, Inc., the survey administrator, uploaded the survey to the Computer Assisted Telephone Interviewing System (CATI) in preparation for conducting telephone surveys.

SAMPLE PREPARATION

Table 1 shows the targeted quotas the measurement team set for the survey, along with the actual survey completes and resulting confidence levels for each group. The team believed that these quotas would provide a reasonable level of statistical accuracy to estimate travel and air quality emission reductions for the region. Due to reclassifications of the three survey groups and a good dialing incidence, the measurement team was able to complete more surveys than originally anticipated, resulting in a higher level of confidence with the survey data.

TABLE 1: SURVEY SAMPLE SIZE AND CONFIDENCE LEVELS

Survey Quotas	Targeted Quotas	Completed Surveys (Sample Size)	Level of Confidence
Alternate Mode Switcher	400	502	95% $\pm$ 4.4%
Drive Alone Switcher	200	209	95% $\pm$ 6.8%
Non-Switcher	400	495	95% $\pm$ 4.4%

Similar to the 2002 survey, survey respondents had to reside in the 13-county Atlanta region, be 18 years of age or older, employed full or part time (not self-employed), and commute to and from work (the respondent could not work out of the home). After asking the initial screening questions, interviewers continued the survey and classified each respondent into one of the following categories:

- **Alternative Mode Switcher** - Respondents who started using a new alternative mode, increased use or frequency of an alternative mode, or increased carpool occupancy to travel to and from work since 1990.
- **Drive Alone Switcher** - Respondents who started driving alone or increased their frequency of driving alone and did not make a switch to an alternative mode to travel to and from work since 1990.
- **Non-Switcher** - Respondents who did not make any changes in how they travel to and from work since 1990.

SURVEY PRE-TEST

CIC completed a total of 82 pretest surveys from April 29 through May 2, 2004 before conducting the full survey. The pre-test surveys included 19 alternate mode switchers, seven drive alone switchers, and 56 non-switchers. After examining and discussing the results with the measurement team, CIC made minor modifications to the survey and then began interviewing the full sample.

SURVEY ADMINISTRATION

CIC conducted the survey from its in-house telephone facility in San Diego, California between May 4 and May 25, 2004. Calls were conducted on weekdays as well as weekends, with each potential respondent receiving a minimum of four callback attempts. Survey supervisors randomly monitored calls during the survey period. They also oversaw all interviewers, answering questions as needed. Where necessary, bilingual interviewers completed surveys in Spanish.

After meeting the initial targeted quotas for the three survey groups and reviewing all completed surveys, it was decided that some of the respondents who were surveyed as alternative mode switchers actually qualified as non-switchers. As a result, CIC reclassified the surveys in contention and conducted additional surveys between July 27 and August 17, 2004 to reach additional alternative mode switchers.

EXPANDING THE SURVEY DATA

In order to estimate the regional impact of the survey respondents, the measurement team expanded the survey results to align with published employment information for the 13-county metropolitan Atlanta region (using 2000 U.S. Bureau of Census population and household data).

The measurement team took several steps to expand the survey responses to employed workers within the region. First, they calculated an average employment number using the Bureau of Labor Statistics (BLS), Local Area Unemployment Statistics (LAUS). Of the LAUS employment figures published to date, this period best replicated the survey period. The results are summarized below in Table 2 for the survey area.

TABLE 2: BUREAU OF LABOR STATISTICS (BLS), LOCAL AREA UNEMPLOYMENT STATISTICS (LAUS)

Atlanta Switcher Survey 2004	Estimated Employed Workers
Cherokee	86,614
Clayton	135,211
Cobb	370,124
Coweta	46,770
DeKalb	373,553
Douglas	52,182
Fayette	49,540
Forsyth	62,022
Fulton	409,377
Gwinnett	376,942
Henry	72,120
Paulding	47,163
Rockdale	38,870
Total Survey Area	**2,120,488**
Total Georgia	**4,242,927**

Interviewers asked survey respondents three screening questions critical to developing the factors used to expand the survey results: county of residence, age, and working/non-working household (employed outside the home). CIC used the screening questions, along with the further classifications of the survey group (alternative mode switchers, drive alone switchers, non-switchers) and respondents who did not meet either switcher or non-switcher criteria (non-qualified employed household), to establish the proportion of workers naturally occurring in the 13-county area population.

CIC produced expansion factors for the entire area, rather than for individual counties. As such, expansion estimates should not be broken down further than the overall Atlanta area. The survey findings cannot be examined on a county-by-county basis; they can only be generalized to the region as a whole.

The occurrence of the survey group encountered while dialing was higher than the final counts for completed surveys because quotas were reached at different times. For example, while collecting surveys to meet the Alternative Mode Switcher quota, interviewers encountered many Non-Switchers.

CIC used the percentage of survey type, based on the dialing incidence, to calculate the estimate of workers by survey type. As shown in Table 3, Alternative Mode Switchers (19.6%), Drive Alone Switchers (10.1%), Non Switchers (58.0%), and Not Qualified Employed Household (12.3%) represent 415,616, 214,169, 1,229,883, and 260,820 employed workers, respectively, and sum to equal the overall LAUS employment figure of 2,120,488.

TABLE 3: ESTIMATE OF EMPLOYED WORKERS BY SURVEY GROUP

	Incidence by Survey Group	Percentage of Survey Incidence by Survey Group	Estimate of Workers by Survey Group
Alternative Mode Switchers	502	19.6%	415,616
Drive Alone Switchers	257	10.1%	214,169
Non-Switchers	1,484	58.0%	1,229,883
Not Qualified Employed Household	314	12.3%	260,820
Total	2,905	100.0%	2,120,488

The final step in the expansion process was the application of the estimated number of workers to each survey record. At this point, CIC retained only the completed surveys to represent employed workers in the survey area. Respondents identified as Not Qualified Employed Households were dropped and the total employment figure for the survey was recalculated to 1,859,668. CIC calculated this number by taking the total estimated employment, 2,120,488, minus the estimated employment figure for the Not Qualified Employed Households, 260,820. The new figure, as shown in Table 4, is the controlling number of employed workers represented the by survey groups (1,859,668).

TABLE 4: CALCULATION OF EXPANSION FACTOR BY SURVEY GROUP

	Completed Surveys by Survey Group	Percentage of the Expanded Estimate by Completed Survey	Estimate of Workers by Survey Group
Alternative Mode Switchers	502	22.3%	415,616
Drive Alone Switchers	209	11.5%	214,169
Non-Switchers	495	66.1%	1,229,883
Total	1,206	100.0%	1,859,668

SECTION 3 BACKGROUND TO SURVEY DEVELOPMENT

SETTING THE SIP TARGET

In June 2001, EPD presented one of several possible scenarios for how the region might meet the VMEP target. The scenario, included in Appendix XXV of the SIP, assumes 90% of the travel and emission reductions needed to meet the VMEP target would come from employees of Clean Air Campaign and TMA employer partners. EPD assumed the remaining 10% of travel and emission reductions needed to meet the VMEP target would come from commuters not affiliated with The Clean Air Campaign or the TMAs, referred to as "collateral" reductions.

Using the VMT target of a daily reduction of 4.4 million vehicle miles, a 30 mile average round trip length, and the 90/10 allocation between partner and "collateral" impacts, EPD determined that 132,645 Clean Air Campaign and TMA commuters and 14,739 unaffiliated commuters would need to be placed in alternative forms of transportation, with each commuter reducing 10 vehicle trips per week, by the 2004 attainment date. EPD estimated that the number of commuters placed in alternative modes would reduce 294,768 vehicle trips per day. The reduction in vehicle trips represents a daily reduction of 4.4 million vehicle miles, 4.28 tons of NO_x, and 6.51 tons of VOC. In addition, EPD estimated

REVISIONS TO THE 2002 REGIONAL SWITCHER SURVEY

The measurement team, in consultation with EPD, decided to conduct a regional transportation survey to provide a preliminary assessment of the VMEP target. A regional survey, conducted via the telephone, provided the best opportunity to assess both VMEP and "collateral" participation, or commute changes. In 2002, the survey focused on commuters who had made a commute change to an alternative mode that reduced their number of weekly commute trips. These commuters, defined as "switchers", were asked detailed questions about their travel patterns before and after the changes to collect data needed to calculate the VMT and emission reductions resulting from their commute changes.

The measurement team conducted the first regional transportation survey in 2002 to test if a regional survey could be used to assess travel and emission reductions from VMEPs and to provide an early indication of the region's likely ability to meet the SIP target for VMEPs in 2004. Based on the 2002 survey findings, the measurement team made several suggestions to improve the survey tool and methodology. Suggestions included:

- Collecting current travel data and demographics on "drive alone switchers" and "non-switchers" to test if and how these respondents differed from alternative mode switchers;
- Collecting "prior" travel data for "drive alone switchers" so that EPD could include the full range of commute change impacts in the overall regional behavior change assessment;
- Including more detailed questions about why commuters made commute changes and the potential influence of VMEP-related programs and services on the commute changes in order to examine causality more thoroughly; and,
- Asking more detailed questions about non-commute travel changes and questions about influence of VMEPs on these changes.

The measurement team successfully added the first four suggestions, but, with agreement from both EPD and GDOT, abandoned the idea of collecting non-commute data, primarily because of data reliability concerns. Survey administration costs and survey length would only allow a short series of non-commute

questions and minimal probing on the type of changes made. In addition, the measurement team was concerned that the sample size would be insufficient to examine switches to alternative modes that are used infrequently for non-commute trips.

Other Notable Survey Revisions

Several other issues arose during the development of the questionnaire. Some of these issues had been addressed also in the 2002 survey, but were handled slightly differently for the 2004 survey. These issues include the following:

- Choice of evaluation time frame
- Switches made by respondents new to Atlanta or new to the workforce
- Restrict switch comparison to "just prior" mode
- Track only one current mode for purpose of identifying switching
- Calculation of vehicle trips for 9/80 schedules and teleworking less than one day per week

Evaluation Time Frame – As in the 2002 survey, the evaluation time frame was set as starting in 1990, the year used in the SIP as the baseline. EPD took forecasts of VMT for the target year of 2003 from the Atlanta Regional Commission regional travel model (then based on 1990 travel data) and estimated concomitant emissions. Subtracting the forecast emissions from the allowable emissions provides the total amount of emission reductions necessary to meet attainment. However, during the analysis of the survey data the measurement team examined more recent dates as possible start dates to track more closely with the implementation of regional VMEPs.

Switches by Respondents New to Atlanta or New to the Workforce – The measurement team defined respondents as switchers if they had made a mode, frequency, or occupancy changes since the baseline year of 1990. Forty-three percent of respondents started working in Atlanta after 1990. Comparing the year respondents started their current mode(s) against the year they started working in Atlanta identified switches for these respondents. Essentially, they were given an individual baseline year corresponding to the year they entered the Atlanta workforce. Respondents who made a switch since this date were counted as switchers. The measurement team counted respondents who used only one mode the entire time in the Atlanta workforce as non-switchers, even though their mode start date was after 1990.

"Just Prior" Mode – It is likely that some respondents made multiple switches during the 14-year evaluation period, but the measurement team was concerned that respondents could have difficulty recalling specific travel details for multiple past modes. Therefore, the survey estimated impacts for switches only between the current mode(s) and the mode(s) used just prior to the most recent switch. So, if a respondent currently used transit and switched from carpool, this was the switch captured, even if the respondent made an earlier switch during the 14-year period from driving alone to carpool. While considered necessary to simplify the survey questioning and methodology, this approach might over- or under-estimate the net trip change by failing to track all changes over the full 14-year period. To examine the extent of multiple switching, the 2004 survey added a question to identify any other switches the respondent might have made, in addition to the most recent switch, within the past five years. The measurement team beleived data from any earlier years would be too unreliable to include.

Track Only One Current Mode for Switching Purpose – Another simplifying approach was to ask only about the mode that was started most recently. As noted earlier, the survey asked respondents how long they had used each mode. If the respondent currently used more than one mode, the interviewer based switching tests on the mode used the shortest time. But if the respondent used two modes the same amount of time, the interviewer chose the one used most days per week. The two exceptions to this rule were if the tie was between drive alone and either compressed work schedules (CWS) or teleworking.

Because these two alternative modes nearly always would have been used fewer days per week than drive alone, they were chosen over drive alone as the "most recent" mode for switching purposes.

Calculation of Vehicle Trips for 9/80 Schedules and Teleworking Less than One Day Per Week – The calculation of vehicle trips for the traditional alternative modes followed the usual convention when a mode was used in a typical week: transit, bike, and walk counted as zero trips, CWS and teleworking days counted as zero vehicle trips, and carpool and vanpool trips were assigned trip counts inversely proportional to the number of vehicle occupants.

Two modes, 9/80 CWS and teleworking one to three days per month could not be easily addressed in the typical week travel grids. Each travel grid included a placeholder day for these two options to ensure they were included in the current and previous weekly vehicle trip calculations. Interviewers asked respondents who mentioned these modes in a typical week how they would have commuted to work if they had not been teleworking or working a compressed work week. In the calculation of weekly trips the week that did not include the 9/80 day off or telework day was used as the base calculation. Then one-half a weekly vehicle trip was subtracted from the weekly total to account for one-day off or telework in alternate weeks.

2004 Regional Switcher Survey Overview

Similar to the 2002 survey, the measurement team divided the 2004 survey into seven sections. The first six sections collected data to determine the survey group the respondents would fall within (alternative mode switcher, drive alone switcher, and non-switcher) and the type of changes made by alternative mode and drive alone switchers. The last section collected travel pattern change information and data on other variables for the three survey groups. The sections and their functions are briefly explained below.

1) Identifies Qualified Respondents (includes initial screening questions, asked of all respondents) – Screens for "qualified" commuters and defines years in Atlanta. Defines current commute modes/frequency and creates "current travel grid." Establishes carpool/vanpool occupancy.

2) Mode Switch Screeners (asked of all respondents) – Identifies respondents who switched to a new mode since 1990 or since they entered the Atlanta workforce. Defines previous mode (modes), and establishes mode frequency for a previous "typical week" (previous travel grid).

3) Frequency Switch Screeners (asked of respondents who did not make a mode change) – Identifies respondents who increased the frequency of mode use and establishes the mode frequency for a previous "typical week" (previous travel grid).

4) Occupancy Switch Screeners (asked of carpoolers who did not make a mode change or frequency change) – Identifies respondents who increased the occupancy of their carpool and identifies the previous occupancy of the carpool.

5) Past Travel Grid (established for all alternative mode users) – Establishes modes and frequencies of past mode use (or sets past mode use to be equal to current mode use for respondents who have not made a change).

6) Switcher Tests (all alternative mode users) – Compares the current travel grid with the previous travel grids (and current/previous carpool occupancy) to identify respondents who are either alternative mode switchers or drive alone switchers. Also identifies respondents who use carpool and made an occupancy switch. Defines "non-switchers" as respondents who did not make a commute

pattern switch.

7) Additional Questions Asked of Switchers and a Sample of Non-Switchers –

- Influence on change (alternative mode and drive alone switchers)
- Travel patterns (all employed respondents) – alternative mode access, distance
- Demographic questions (all alternative mode and drive alone switchers and 495 non-switchers)

As shown in the sections 2 through 4, the measurement team separately identified the three types of switchers - mode switchers, frequency switchers, and occupancy switchers. They were addressed in this hierarchical manner for interview efficiency. If a respondent had made a qualified mode switch, questions to test for frequency and occupancy switches were not needed to know that the respondent was a switcher. If the respondent did not make a mode switch, the interviewer asked the respondent if he/she made a frequency change. If the respondent did not make a frequency switch, the interviewer asked the respondent if he/she made an occupancy change.

SECTION 4 SURVEY RESULTS

The following section provides key findings from the survey, including county of residence, employment status, time working in Atlanta, commute mode split by percent of weekly trips, duration of mode use, the type of commute changes or switches made by respondents, and the influences of the commute changes. Demographic profile data of the respondents is also included.

Home Location

The distribution of respondents by county of residence is shown in Table 5. As shown, some counties, such as DeKalb, Fulton, and Gwinnett, had close to 200 or more respondents each while other counties had fewer than 25 respondents each. These percentages roughly mirror the proportion of the population of the counties as they relate to the overall 13-county region.

TABLE 5: COUNTY OF RESIDENCE
(n= 1,206)

County	Percent
Cherokee County	6%
Clayton County	4%
Cobb County	19%
Coweta County	3%
DeKalb County	15%
Douglas County	3%
Fayette County	3%
Forsyth County	4%
Fulton County	21%
Gwinnett County	16%
Henry County	3%
Paulding County	2%
Rockdale County	1%
Total	100%

Current Employment Status

As shown in Table 6, about 83% of the survey respondents are employed full-time and about 17% said they work part-time. These percentages add to 100% because all eligible respondents were currently employed. Residents who were not employed were not included in the survey.

TABLE 6: CURRENT EMPLOYMENT STATUS
(n=1,206)

Employment Status	Percent
Yes, full-time	83%
Yes, part-time	17%

Time Working in the Atlanta Area

Also included was a question about the length of time respondents had been working in the Atlanta area. As was noted earlier, the evaluation period was set as the time from 1990 to the time of the survey. Because it was expected that some respondents would have difficulty recalling the exact date they entered the workforce, several prompts followed the initial question. The responses for this question are shown in Table 7. As indicated, about one-third of respondents said they had been working in Atlanta more than 14 years, or before start of the evaluation period (before 1990).

TABLE 7: TIME WORKING IN ATLANTA
(n=1,206)

Time	Percent	Cumulative Percent
One year or less	10%	10%
13 months – 2 years	6%	16%
25 months – 3 years	6%	22%
37 months – 4 years	6%	28%
49 months – 5 years	5%	35%
61 months – 6 years	4%	39%
73 months – 7 years	4%	43%
85 months – 8 years	3%	46%
97 months – 9 years	3%	49%
109 months – 10 years	7%	56%
121 months – 11 years	2%	58%
133 months – 12 years	3%	61%
145 months – 13 years	2%	63%
157 months – 14 years	3%	66%
More than 14 years (Pre-1990)	34%	100%

Current Commute Mode (Current Travel Grid)

Next, interviewers asked respondents how they had traveled to work each day of the previous week. Interviewers asked respondents if the last week was a typical commuting week. If the answer was "no," the interviewer asked respondents what modes he or she would use to commute in a "typical week" and how many days each mode would be used. The majority (90%) said last week was a typical week, so responded with actual travel during the previous week. The remaining 10% answered the alternate question about travel in a typical week.

Because it was important to get a complete count for every day of the week, interviewers asked respondents who said they had a 9/80 compressed work schedule day off: "How would you have traveled to work if you had not had the compressed work schedule day off?" Interviewers recorded both the compressed schedule day off and the other mode.

Interviewers asked respondents who did not report that they teleworked in either the last week or typical week if they typically teleworked one or more days per month. Telework was defined as "working all day during your regularly assigned work hours at home or at another location that is closer to your home than is your usual work location, other than for an off-site meeting." These questions collected information on occasional use of telecommuting that could be counted as a mode switch credit, but that did not occur in a typical week.

Current Mode Split by Percent of Weekly Trips –

Table 8 summarizes the current mode split as the percentage of weekly trips made for all respondents, with telework and compressed schedules included as "modes." As shown, respondents made the largest percentage of weekly trips driving alone (80%). Nearly one in ten (8%) weekly trips were carpool trips, while about 7% were either on a bus or train. The average one-way commute distance for respondents was 17 miles.

TABLE 8: COMMUTE MODE SPLIT BY PERCENT WEEKLY TRIPS
(n=1,206)

Commute Mode	Percentage of Weekly trips
Drive alone	80.0%
Carpool	7.8%
Vanpool	0.0%
Bus	3.2%
Train	2.9%
Bike	0.3%
Walk	1.1%
Telework	3.7%
Compressed Work Week	1.0%

TEST FOR SWITCH TYPE

The measurement team derived the results shown above from the "current travel grid" that showed, for each respondent, the modes used each day of the week to travel to and from work. The next step in the survey was to determine if respondents had made a mode switch, frequency switch, or occupancy change. As mentioned previously, interviewers examined mode switches first because it was expected that they would constitute the largest percentage of switches.

The survey method counted switches only if they had occurred since 1990 or since the respondent entered the workforce, if the respondents entered the Atlanta workforce after 1990. To minimize bias among respondents who might feel the interviewers wanted or did not want them to have made a mode shift, the survey did not directly ask about mode changes during these periods. Rather the survey compared the mode start date against 1990 or the work start date, whichever was earlier.

A question early in the survey established the respondents "baseline" year. Next, for the comparison, the survey determined the length of time respondents had used the modes mentioned in the current travel grid. As with the duration of working in Atlanta, several prompts were included, if necessary, to assist respondents to identify the approximate time of the switch. If the respondent had used more than one mode, the questions about duration were repeated for each. The results of this question are presented in Table 9.

TABLE 9: DURATION OF COMMUTE MODE USE

Alternative Mode	Percentage	
	Greater Than or Equal to 14 years	Less Than 14 years
Drive Alone (n=918)	28%	72%
Carpool (n=174)	3%	97%
Vanpool (n=1)	NA	100%
Bus (n=50)	NA	100%
Train (n=51)	10%	90%
Walk (n=22)	NA	100%
Bicycle (n=8)	15%	85%
Telework (1+ days/week) (n=91)	NA	100%
Telework (1-3 days/month) (n=159)	1%	99%
4/40 CWS (n=57)	NA	100%
9/80 CWS (n=24)	NA	100%
3/36 CWS (n=12)	NA	100%

Mode Switch Screening

For each respondent, the duration of mode use was compared against 168 months (14 years), the time elapsed since 1990, or the number of months since the respondent started working in the Atlanta region. If this comparison showed that the start date for the mode was less than 168 months or less than the time working in Atlanta, this respondent was considered a mode switcher. Interviewers asked these respondents follow-up questions to determine the modes used prior to this change and the weekly frequency of use of each mode. Six hundred forty seven (647) of the 1,206 survey respondents said they made a switch to an alternative mode or to drive alone during the evaluation period.

Interviewers asked respondents who said they made a mode switch what modes they had used before making the switch and how many days in a typical week they used the modes. These results were used to calculate the previous weekly vehicle trips for each respondent.

Frequency Switch Screening

If the comparison of the commute mode duration to the evaluation period showed that the time using the mode was greater than or equal to 168 months or equal to the time the respondent had worked in Atlanta, the respondent had not made a mode switch. The interviewer asked these respondents follow-up questions to determine if a frequency switch had occurred. These respondents were asked if they had

increased or decreased the number of days per week that they used any of the current commute modes during the evaluation period. For interview efficiency, interviewers asked only about the commute modes respondents said they were currently using.

Sixty-four (64) of the 1,206 survey respondents said they either increased or decreased the number of days they used current commute modes during the evaluation period. The majority of these respondents (52 out of 64) were drive alone commuters and the remaining 12 either increased or decreased their use of alternative modes. The interviewers asked frequency switchers about their previous travel patterns, but with the modes unchanged from the current modes. As with mode switchers, the measurement team used the data in the previous travel grids to calculate previous weekly vehicle trips for frequency switchers.

Occupancy Switch Screening

Finally, interviewers asked respondents who were currently carpooling, but who said they had not made a mode or frequency shift, if they had increased or decreased the number of people riding in the carpool. There were no carpoolers who had been carpooling before the evaluation period started that had increased their carpool size. Therefore, there were no occupancy switchers identified in this survey. Interviewers did not ask vanpoolers this question; vanpool ridership can change frequently and riders might not be able to recall such changes accurately. Further, since vanpools already are assigned a quite small vehicle count (inversely proportional to the number of vanpool riders), the measurement team decided omitting vanpool occupancy changes would result in a very small loss of credit.

TEST FOR SWITCHER GROUP

The last section of switcher screening portion of the survey classified each respondent into one of the following survey groups by comparing the current and previous commute travel grids:

- Alternative mode switcher group - respondents who started using a new alternative mode, increased use of an alternative mode, or increased carpool occupancy;
- Drive alone switcher group - respondents who started driving alone or increased frequency of driving alone and did not make a switch to an alternative mode; and
- Non-switcher group - respondents who had not made any changes in mode, frequency, or occupancy. This group also included respondents who decreased the number of days they worked, for example shifting from a full-time to part-time schedule, but who did not start using an alternative mode or increase the frequency of alternative mode use.

As shown in Table 10, of the 1,206 respondents participating in the survey, the measurement team classified 502 in the alternative mode switcher group, 209 in the drive alone switcher group, and 495 in the non-switcher group.

TABLE 10: SURVEYS COMPLETED BY SWITCHER CATEGORY

Survey Groups	Completed Surveys (Sample Size)
Alternate Mode Switcher	502
Drive Alone Switcher	209
Non-Switcher	495

It should be noted that these numbers do not represent the proportions of the three groups in the overall commuting population. As explained earlier, the measurement team defined quotas for both the alternative mode switchers and drive alone switchers, of 400 and 200 completed interviews, respectively, to ensure an adequate sample of each of these two important groups. Some respondents were reclassified into different switch or non-switch groups after the initial interview period and the measurement team decided to obtain additional alternative mode switcher interviews, thus the totals for these groups exceeded the minimum quotas.

When these raw samples were weighted to the total regional commute population, the final percentages of commuters in each of the three switch groups were as shown in Table 11. About one-third of the regional population had made a switch. About two in ten (22.4%) made a switch to an alternative mode and about one in ten (11.5%) made a switch to drive alone. The remaining two-thirds (66.1%) of the population had not made a switch since 1990 or since starting to work in Atlanta.

TABLE 11: PERCENTAGE OF REGIONAL COMMUTER POPULATION BY SWITCHER CATEGORY

Survey Groups	Percentage
Alternate Mode Switcher	22.4%
Drive Alone Switcher	11.5%
Non-Switcher	66.1%

Current and Previous Travel Grids

The test for switching classification completed the screening portion of the survey. Following this classification, interviewers asked respondents questions pertinent to their switcher status. Prior to asking these remaining questions, interviewers calculated the two travel variables, current weekly vehicle trips (CVT) and previous weekly vehicle trips (PVT). Interviewers used CVT and PVT to estimate changes in trips by switchers.

Interviewers calculated CVT from the current travel grid provided by the respondents for either the last week or typical week travel questions (modes used by each day of the week). Interviewers calculated PVT from the previous travel grid provided from the follow-up questions about modes used before a switch was made. For three groups of respondents, the previous travel grid was the same as the current travel grid. These groups included respondents who said they made an occupancy switch (no changes in modes or frequency of use), respondents who said they did not make any switches (no changes in mode, frequency, or occupancy), and respondents who said they were not working in Atlanta prior to starting to use their current modes.

CVT and PVT Calculation

The CVT and PVT calculations were performed without any involvement of either the respondent or the interviewer; it was calculated by formulas programmed into the questionnaire software. The software calculated CVT the same way for all respondents, as shown below:

CVT = 2 x
((number of days currently driving alone)
+ (number of days currently carpooling / current carpool occupancy)
+ (number of days currently vanpooling / current vanpool occupancy)

– (0.5 X current number of 9/80 CWS days off)
– (0.5 X current number of telework 1-3 times per month))

This calculation added together the number of drive alone days, the number of carpool days divided by carpool occupancy, and the number of vanpool days divided by the vanpool occupancy. If the respondent worked a 9/80 compressed work schedule or said he or she teleworked one to three days per month, the software gave a credit of 0.5 weekly vehicle trips for each of the two modes that applied to that respondent. The software multiplied these totals by two to obtain the weekly one-way vehicle trip count.

The software calculated PVT in much the same way. The formula for this calculation is shown below:

PVT = 2 x
((number of days previously driving alone)
+ (number of days previously carpooling / previous carpool occupancy)
+ (number of days previously vanpooling / previous vanpool occupancy)
– (0.5 X previous number of 9/80 CWS days off)
- (0.5 X previous number of telework 1-3 times per month))

CVT and PVT Comparison

Finally, the software compared CVT and PVT for each respondent. If PVT was greater than CVT, the respondent had reduced weekly vehicle trips. If PVT was less than CVT, the respondent had increased the number of weekly vehicle trips. And if PVT was equal to CVT, the respondent had neither increased nor decreased weekly vehicle trips.

In general, alternative mode switchers reduced their weekly vehicle trips, drive alone switchers increased vehicle trips, and non-switchers had made no change in vehicle trips. However, it is possible that some alternative mode switchers could have increased or maintained trips, if they switched from one alternative mode to another. For example, a respondent who switched from five-days of transit to five days of carpool would have increased weekly vehicle trips.

COMMUTE CHANGE OR SWITCH INFLUENCES

One of the last sections of the survey involved asking drive alone switchers and alternative mode switchers what influenced them to make changes in how they travel to and from work. Influences for these two groups are shown separately in Table 12. As expected, drive alone switchers were more likely to mention that the reason they switched was because they moved their residence or they or their spouse changed jobs (51% of drive alone switchers compared to 33% of alternative mode switchers). Also as expected, alternative mode switchers were more likely to mention that they switched because they wanted to save time or money and they did not want to drive because traffic was worse.

TABLE 12: COMMUTE CHANGE INFLUENCES (UNAIDED QUESTION) DRIVE ALONE SWITCHERS AND ALTERNATIVE MODE SWITCHERS

Influences	**Percentage** Drive Alone Switchers (n=209)	**Percentage** Alternative Mode Switchers (n=502)
Moved my home or changed jobs, spouse changed jobs	51%	33%
Wanted to save time	7%	14%
Didn't want to drive, traffic was worse	1%	13%
Wanted to save money	3%	11%
Spouse/family member, friend, co-worker wanted to carpool	NA	9%
Preferred to drive	9%	2%
Didn't have access to car/truck for regular use	2%	5%
Job/employer offered/required it	>1%	5%
Carpool/vanpool broke up, lost carpool/vanpool partner	12%	>1%
Work schedule changed/worked more/fewer days	8%	2%
Got access to car/truck for regular use	9%	1%
Concerned about the environment	>1%	4%
Received other commute service from employer	NA	3%
Like being able to work at home/more time with family	NA	3%
Didn't like using previous type of transportation	2%	1%
New type of transportation became available	>1%	2%
Parking cost too high	NA	1%
Started needing car before/during work	2%	>1%
New mass transit line became available	NA	1%
Transit service not available anymore	NA	>1%
Get an extra day off/one less day to commute	>1%	>1%

Influence of Commute Information or Services

Interviewers asked the 3% of alternative mode switchers (17 respondents) who said in the unaided question that they were influenced by a commute service from their employer what commute service they had received. The overwhelming majority (14 of 17) of respondents who were asked this question said their employer had implemented a telework policy. A few also mentioned discount transit passes and prizes or contests for not driving alone. None of the drive alone switchers mentioned being influenced by a commute service from their employer.

In addition, alternative mode switchers who did not mention in the unaided question that an employer or commute assistance organization had influenced their commute change were asked directly if their change had been "influenced or encouraged" or "assisted" by commute information or services. About 14% of the 485 respondents who were asked this question said that they had received commute information or

assistance from their employer or another organization that had influenced their change, while another 1% said that a commute information or service they received assisted them to make a change. When asked about the information or service that influenced or assisted in the change, just over half (53% of 70 respondents) mentioned telework information and about 13% mentioned carpool or vanpool subsidy or cash incentive. Another 7% each mentioned transit information or schedules or discounted transit passes.

DEMOGRAPHIC PROFILE OF RESPONDENTS

Gender and Age

Fifty-five percent of the respondents were female, and 45% were male. As shown in Table 13, 48% of the respondents are between 35 and 49 years old and 75% are between 35 and 64 years old.

TABLE 13: AGE GROUP
(n=1,185)

Age Group	Percent
Under 24	8%
25 – 34	22%
35 – 49	44%
50 – 64	24%
65 or older	2%

Ethnic/Racial Heritage

As shown in Table 14, Caucasians/Whites and African-Americans/Blacks represent the two largest ethnic group categories of survey respondents, 63% and 23% respectively.

TABLE 14: ETHNIC BACKGROUND
(n=1,149)

Ethnic Group	Percent
Caucasian/White	63%
African-American/Black American	23%
Hispanic American/Latino	8%
Asian American/Pacific Islander	3%
Other/Mixed	3%

Income

Table 15 provides a breakdown of respondents by annual household income category. About three-quarters of respondents (73%) have household incomes of $40,000 or more and more than one-third (37%) have incomes of $80,000 or more.

TABLE 15: ANNUAL INCOME GROUP
(n=921)

Income	Percent
Less than $20,000	10%
$20,000 – 29,999	8%
$30,000 – 39,999	9%
$40,000 – 59,999	18%
$60,000 – 79,999	18%
$80,000 or more	37%

Employer and Occupation Type

Nearly eight in ten respondents (78%) work for private industry, while about two in ten (22%) work for a federal, state, or local government agency. As shown in Table 16, white collar workers made up nearly two-thirds (64%) of the respondent base.

TABLE 16: OCCUPATION TYPE
(n=1,162)

Income	Percent
Professional	25%
Service Industry Worker	20%
Company Manager, Official, or Business Owner	17%
Clerical/Sales	15%
Operator/Laborer/Manufacturing	9%
IT or Technical	7%
Craftsmen/Foreman	5%
Other	2%

SECTION 5 TRAVEL AND EMISSION REDUCTIONS

Based on the experiences gained from the 2002 VMEP assessment, the measurement team decided to focus on two approaches for assessing travel and air quality emission reductions for the 2004 assessment. The first is assessing impacts of all regional commute changes, including both switches to alternative modes and switches to drive alone, during the evaluation period. The second approach involved estimating impacts only for commuters who had made a switch to an alternative mode, but assessing also the portion of those shifts that might be attributable to VMEP services. These approaches and the associated travel and emission reductions are presented below.

ALL REGIONAL COMMUTE CHANGES DURING THE EVALUATION PERIOD

This approach accounts for the full range of commute change impacts that occurred in the region since the SIP baseline year (1990), providing a true regional assessment of behavior change. It counts both commute changes that reduce weekly vehicle trips (e.g., single occupant vehicle (SOV) to transit or carpool to transit) and commute changes that increase weekly vehicle trips (e.g., transit to carpool or carpool to SOV). It does not, however, consider the motivation for commute changes, nor does it consider if VMEPs influenced the changes.

This approach does consider two different evaluation periods. The first period covers the full 14 years from the SIP baseline year of 1990. The second period examines commute changes that occurred only during the past seven years (when the region implemented VMEPs in earnest). Specifically, the 7-year evaluation period begins at the time when the region initiated many of the current local and regional commute services, such as the regional rideshare database and state and federal employer commute assistance programs. It also includes the time period (2000) when the region initiated a large-scale media campaign and increased employer outreach to promote private sector employer commute assistance programs.

As shown in Table 17, the reductions in vehicle trips, vehicle miles, and emissions calculated for this approach fall short of the VMEP targets.

TABLE 17: DAILY TRAVEL AND EMISSION REDUCTIONS FOR ALL COMMUTE CHANGES

	Commuter Placements	Daily Vehicle Trips Reduced	Daily Vehicle Miles Reduced	Daily NO_x Reduced (tons)	Daily VOC Reduced (tons)
VMEP SIP Targets	147,384	294,768	4,421,487	4.28	6.51
All Regional Commute Changes					
14-year evaluation period	NA*	53,813	913,203	.929	1.26
7-year evaluation period	NA*	71,363	1,235,292	1.25	1.52

*Commuter placements are defined as the number of commuters placed in alternative modes. Because this approach includes all regional commuters, both from the 14-year and 7-year evaluation period, commuter placements are not applicable.

ALTERNATIVE MODE CHANGES AND ATTRIBUTION TO VMEPS

This second approach estimates impacts only for commute changes associated with alternative mode switching, where switching again was measured for both the 14-year period and the 7-year period. This approach makes the assumption that switches to drive alone should not be counted because they likely

were not the result of VMEPs, but rather the result of changes in commuters' personal circumstances (e.g., changing jobs) or other personal travel needs or preferences. But because it's possible some switches to alternative modes also were motivated by non-VMEP factors, this approach takes the further step of examining why commuters made alternative mode switches and the potential influence of VMEPs on the commute changes.

The approach considered two tiers of possible VMEP influence. As shown in Table 18, Tier One influences account for the influences from direct receipt of or contact with a VMEP service or program (e.g., transit subsidy, employer commute assistance). About 22% of alternative mode switchers who made their switch sometime in the 14-year period mentioned that a Tier One item influenced their decision. The percentage was about the same (23%) among commuters who made their switches to alternative modes during the 7-year period.

TABLE 18: TIER ONE VMEP INFLUENCES

VMEP Programs and Services
Received carpool, vanpool, or transit subsidy
Received other commute service from employer
Job or employer offered or required it
Received other commute service from organization that provides commute information or services
Saw, heard, or read radio, TV, or newspaper ad about commuting, commute options*
New mass transit line became available

**No respondents reported being influenced by a radio, TV, or newspaper ad about commuting or commute options.*

As shown in Table 19, Tier Two influences account for the potential influences that might be occurring due to a VMEP message (e.g., teleworking saves time, carpooling saves money) disseminated by VMEP partners. Tier Two also includes actions that might have been indirectly influenced by a VMEP service or program (e.g., family member, friend, coworker wanted to carpool). About 40% of the commuters who made alternative mode switches during the 14-year period mentioned a Tier Two influence. Again, the percentage was about the same (42%) for commuters whose alternative mode switch occurred during the 7-year evaluation period.

TABLE 19: TIER TWO VMEP INFLUENCES

VMEP Messages and Other Indirect Influences
Concerned about the environment
Didn't want to drive, traffic was worse
Wanted to save money
Wanted to save time
New type of transportation became available
Spouse or family member, friend, coworker wanted to carpool
Like being able to work at home and having more time with family

It is important to note that the Tier One and Tier Two categories might exclude some of the subconscious effects or indirect impacts of VMEPs that are not immediately evident or obvious to individuals making

commute changes. It is possible that some commuters are prompted to make commute changes, but are not fully aware of the influences (either influences on them or on a rideshare partner) that led to the change. But, by including Tier Two reasons in the count of influenced commuters, it is likely that at least some of these "unaware" commuters are captured as "indirectly influenced."

It is also possible that some impacts counted under Tier Two could have no connection with the VMEPs at all. For example, shifting to the train because traffic is worse was not necessarily the result of hearing or seeing a VMEP message about traffic. It could be simply that some commuters made the connection between train and avoiding traffic or between a carpool and saving money without any direct or indirect VMEP influence. In this way, Tier Two could capture some impacts that were not truly VMEP induced.

It is also important to note that some of the Tier One and Tier Two influences may already be included in the regional travel demand model for the region, and thus might already be counted in the VMEP target baseline assessment. Examples of this could be a new transit line becoming available (Tier One VMEP Influence) or a new type of transportation becoming available (Tier Two VMEP Influence). The measurement team did not discount for this potential overlap, but has pointed out to both EPD and GDOT that this may be the case.

Travel and emission reduction results for this approach are shown in Table 20 and fall short of all VMEP targets. However, the results are much closer than the approach presented in Table 20, in which VMEPs not only have to meet the SIP target for new shifts to alternative modes, but also must absorb the negative impacts that result when commuters who were using alternative modes at the baseline year shifted away from alternative modes to driving alone.

TABLE 20: DAILY TRAVEL AND EMISSION REDUCTIONS FOR ALTERNATIVE MODE COMMUTE CHANGES AND ATTRIBUTION TO VMEPS

	Commuter Placements	Daily Vehicle Trips Reduced	Daily Vehicle Miles Reduced	Daily NO_x Reduced (tons)	Daily VOC Reduced (tons)
VMEP SIP Targets	147,384	294,768	4,421,487	4.28	6.51
Alternative Mode Commute Changes Attributable to VMEPs					
14-year evaluation period	260,201	176,707	3,235,514	3.24	3.93
14 year – Tier 1	92,276	62,666	1,147,419	1.15	1.39
14 year – Tier 2	167,925	114,041	2,088,095	2.09	2.54
7-year evaluation period	252,113	169,289	3,169,083	3.18	3.85
7 year – Tier 1	89,709	60,238	1,127,649	1.13	1.37
7 year – Tier 2	162,404	109,051	2,041,434	2.05	2.48

APPENDIX A-1

LOGIN = TEMP8

Demo = switchdm
Survey = switch04

ATLANTA SWITCHER SURVEY - #825

QUESTIONNAIRE – FINAL – 5-4-04

Overview: The survey calls randomly-selected commuters in the Atlanta region and asks a series of questions to identify "qualified" commuters who made a commute pattern switch. Qualified commuters are commuters who are: 18+ years old, employed (full-time or part-time), not self-employed, and resident of one of 13 counties.

Qualified commuters are asked questions to determine their current travel patterns and if they made a change in the type or types of transportation they use to get to work ("switchers) in a typical week.

Respondents who meet "switcher" tests are asked additional travel questions (e.g., distance and access to alt modes), questions about services or factors that influenced their switches, non-commute travel questions and demographic questions.

A sample of respondents who are not identified as switchers are asked additional travel questions (e.g., distance and access to alt modes) and demographic questions.

Survey sections

1) **Initial Screeners (asked of all respondents) –** Screens for qualified commuters and defines years in Atlanta. Defines current commute modes and frequency of use and creates "current travel grid." Establishes current CP/VP occupancy.

2) **Mode Switch Screeners (asked of all respondents)** – Identifies respondents who switched to a new mode since 1990 or since they entered the Atlanta workforce, defines previous mode (modes), and establishes mode frequency for a previous "last/typical week"

3) **Frequency Switch Screeners (asked of respondents who did not change mode)** – Identifies respondents who increased the frequency of mode use and establishes the mode frequency for a previous "last/typical week"

4) **Occupancy Switch Screeners (asked of respondents who use a carpool but did not change mode or frequency)** – Identifies respondents who increased the occupancy of their carpool and identifies the previous occupancy of the carpool.

5) **Past Travel Grid (established for all alt mode users)** – Establishes modes and frequencies of past mode use (or sets past mode use to be equal to current mode use for respondents who have not made a change)

6) **Switcher Tests (all alt mode users)** – Compares the current travel grid with the previous travel grids (and current/previous carpool occupancy) to identify respondents who are either

alt mode switchers or drive alone switchers. Also identifies respondents who use carpool and made an occupancy switch. Defines "non-switchers" as respondents who did not make a commute pattern switch.

7) Additional Questions asked of switchers and sample of non-switchers

- Influence on change (alt mode and drive alone switchers)
- Travel patterns (all employed respondents) – Alt mode access, distance
- Demographic questions (all alt mode and DA switchers and 400 other respondents)

Switcher Survey

Intro

Hello. My name is_____ . I'm calling from CIC Research, a survey research firm on behalf of Georgia Department of Transportation. We're talking to Atlanta area residents about commuting to work. (IF NECESSARY: This is a genuine survey. No attempt will be made to sell you anything.) I'd like to ask you a few questions. Your responses will be completely confidential and will be used only together with those of other respondents.. It will take only a few minutes. Can you help us out?

SECTION 1) NON-SWITCHER SCREENERS

Identify "qualified" commuters

S1. In what county do you live?

Cherokee	Douglas	Henry
Clayton	Fayette	Paulding
Cobb	Forsyth	Rockdale
Coweta	Fulton	
DeKalb	Gwinnett	Other _____ **(THANK & TERMINATE)**

S1A. Are you 18 years of age or older?

1 Yes **(CONTINUE)**
2 No **(SEEK REFERRAL)**
3 Refused **(SEEK REFERRAL)**

S2. How many members of your household are currently employed?

_____

0 No workers in the household **(THANK AND TERMINATE)**

S2A. Are you currently employed outside the home? **(IF YES)** Is that part-time, which is less than 35 hours per week, or full-time, which is 35 or more hours per week?

1 Yes, part-time (<35 hours per week)
2 Yes, full-time (35+ hours per week)
3 Homemaker **(SEEK REFERRAL)**
4 Self-employed **(SEEK REFERRAL)**
5 No, not employed **(SEEK REFERRAL)**
6 Don't know/Refused **(SEEK REFERRAL)**

S3. How long have you been working in the Atlanta area? **(IF RESPONDENT SAYS "DON'T KNOW," PROMPT)** "Do you remember about what year you started working here?" **(IF RESPONDENT STILL CAN'T DEFINE WHEN, PROMPT)** "Can you remember if it was before 1990" **(IF RESPONDENT REPORTS LESS THAN ONE MONTH, RECORD "ONE MONTH")**

_____ months **(INTERVIEWER CONVERT YEARS TO MONTHS)**

S4. Gender **[BY OBSERVATION]**

1 Male **[WEIGHT TO 48%]**
2 Female **[WEIGHT TO 52%]**

IF Q.S2A NE 2, SKIP TO Q.S4C

S4A. Do you work a compressed work schedule, for example, working four ten-hour days per week, with one week day off each week, or 80 hours in nine days, with one week day off every two weeks?

1 Yes
2 No **(SKIP TO Q.S4C)**
3 Don't know/Refused **[DO NOT READ] (SKIP TO Q.S4C)**

S4B. What type of compressed work schedule do you work? A 4/40, a 9/80, a 3/36, or something else?

1 4/40 - that is, 40 hours in four days with one weekday off each week
2 9/80 - that is, 80 hours in a nine day period with one weekday off every two weeks
3 3/36 - that is, 36 hours in three work days with two weekdays off each week
4 OTHER (SPECIFY) _____

S4C. Now I'd like to ask a few questions about your current commute. If you work more than one job, please give us information on your commute to your primary job. First, in a typical week, how many days are you assigned to work?

____ days

S4D. Was last week a typical commuting week for you?
1 Yes (CONTINUE)
2 No (SKIP TO Q5Y)

Establish Current Travel Grid (Mode(s) used and frequency)

S5. Next, I'd like to ask you how you travel to work. Thinking about LAST WEEK, how did you get to work each day. Let's start with Monday?… How about Tuesday? … Wednesday?… Thursday?… Friday?

(IF Q.S4B = 2 AND RESPONDENT MENTIONS "COMPRESSED WORK SCHEDULE DAY OFF" FOR ANY DAY MONDAY THROUGH FRIDAY, RECORD RESPONSE 2 FOR THAT DAY, THEN ASK) How would you have traveled to work if you had not had the compressed work schedule day off? **(THEN RECORD THIS RESPONSE <u>ALSO</u> AS GIVEN FOR THAT DAY)**

(IF ALL DAYS IN Q.S4C ARE ACCOUNTED FOR BY MODES 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 IN Q5, CATI WILL AUTOFILL SAT & SUN WITH CODE 12 AND SKIP TO Q.S5A; OTHERWISE CONTINUE)

(IF RESPONDENT MENTIONS "SICK, VACATION, HOLIDAY" (RESPONSE 13) FOR ANY DAY, CODE RESPONSE 13, THEN ASK:) "If you had worked that day, how would you likely have traveled to work?" AND CODE ADDITIONAL MODE RESPONSE FOR THAT DAY.

Are you **REGULARLY ASSIGNED** to work on Saturday or Sunday? **(IF YES, ASK)** "and how did you travel to work on these days last week? **(RECORD ANSWER AS GIVEN.)**
(IF RESPONDENT IS NOT ASSIGNED TO WORK ON SATURDAY OR SUNDAY, RECORD "DID NOT WORK")

(IF RESPONDENT MENTIONS TWO MODES (OTHER THAN 9/80 COMPRESSED WORK SCHEDULE) FOR ANY DAY, ASK) Which type of transportation did you use for the longest distance portion of your trip?

(IF RESPONDENT MENTIONS "TELEWORK / TELECOMMUTE" OR "COMPRESSED WORK SCHEDULE DAY OFF" FOR SATURDAY OR SUNDAY, ASK) Is this a regularly assigned work day for you? **(IF "YES," RECORD ANSWER AS GIVEN. IF "NO," RECORD "DID NOT WORK.")**

(TOTAL NUMBER OF DAYS REPORTED IN RESPONSES 1-11 MUST EQUAL SEVEN, IF FEWER THAN SEVEN DAYS CODED 1-11 CODE REMAINING DAYS AS "DID NOT WORK (13)"

	Mode Used Monday – Sunday						
<u>Mode/days used last week</u>	M	Tu	W	Th	F	Sa	Su
1 had a 4/40 CWS day off	M	Tu	W	Th	F	Sa	Su
2 had a 9/80 CWS day off	M	Tu	W	Th	F	Sa	Su
3 had a 3/36 CWS day off	M	Tu	W	Th	F	Sa	Su
4 drove alone in your car or motorcycle	M	Tu	W	Th	F	Sa	Su
5 carpooled, including carpool w/family	M	Tu	W	Th	F	Sa	Su
6 vanpooled	M	Tu	W	Th	F	Sa	Su
7 rode a bus	M	Tu	W	Th	F	Sa	Su

8 rode a train or subway	M	Tu	W	Th	F	Sa	Su
9 walked	M	Tu	W	Th	F	Sa	Su
10 bicycled	M	Tu	W	Th	F	Sa	Su
11 telecommuted/teleworked (1+ days per week)	M	Tu	W	Th	F	Sa	Su
12 telecommuted/teleworked (1-3 days per month)	M	Tu	W	Th	F	Sa	Su
13 regular day off	M	Tu	W	Th	F	Sa	Su
14 sick, vacation, holiday (prompt for travel on non-sick, vacation, holiday day)	M	Tu	W	Th	F	Sa	Su

S5Y. Thinking about a TYPICAL WORK WEEK, how many days would you usually …? If you work more than one job, please give us information on your commute to your primary job.

IF Q.S4B = 1, ASK RESPONSE "1" IN GRID

IF Q.S4B = 2, ASK RESPONSE "2" IN GRID (RECORD "1" IN RESPONSE 2)
(IF RESPONDENT MENTIONS "1" OR "ONE DAY EVERY OTHER WEEK," RECORD "1" IN RESPONSE 2, THEN ASK) How would you travel to work in the week you do not have the compressed work schedule day off? How many days would you usually …? **(THEN RECORD RESPONSES AS GIVEN)**

IF Q.S4B = 3, ASK RESPONSE "3" IN GRID

OTHERWISE, SKIP TO RESPONSE 4

(IF ALL DAYS IN S4C ARE ACCOUNTED FOR BY MODES 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 IN Q.S5Y, CATI WILL AUTOFILL REMAINING DAYS WITH CODE 13; OTHERWISE CONTINUE ASKING ABOUT MODES)

	Number of days						
Mode/ Number of days	1	2	3	4	5	6	7
1 have a 4/40 CWS day off	1	-	-	-	-	-	-
2 have a 9/80 CWS day off	1	-	-	-	-	-	-
3 have a 3/36 CWS day off	1	2	-	-	-	-	-
4 drive alone in your car or motorcycle	1	2	3	4	5	6	7
5 carpool, including carpool w/family	1	2	3	4	5	6	7
6 vanpool	1	2	3	4	5	6	7
7 ride a bus	1	2	3	4	5	6	7
8 ride a train or subway	1	2	3	4	5	6	7
9 walk	1	2	3	4	5	6	7
10 bicycle	1	2	3	4	5	6	7
11 telecommute/telework (1+ days per week)	1	2	3	4	5	6	7
12 telecommuted/teleworked (1-3 days per month)	1	-	-	-	-	-	-
13 regular day off	1	2	3	4	5	6	7

IF Q.S4D = 2, CURRENT TRAVEL GRID FROM Q.S5Y WILL SUPERCEDE GRID REPORTED IN Q.S5 FOR ALL FUTURE QUESTIONS REFERRING TO Q.S5 AND Q.S5Y.

IF Q.S5 OR Q.S5Y, RESPONSE 11 GE 1, SKIP TO Q.S5C

S5A. Do you telework or telecommute one or more days per month. By telework/telecommute, I mean work all day during your regularly assigned work hours at home or at another location that is closer to your home than is your usual work location, other than for an off-site meeting?

1 yes **(ASK Q.S5B)**
2 no **(SKIP TO Q.S5C)**

S5B. How often do you telework or telecommute?

1 1 – 3 times per month **(ADD S.Q5 OR S.Q5Y, RESPONSE 12 = 1)**
2 Less than once per month/in emergencies only
3 Other _____

IF Q.S5 OR Q.S5Y, RESPONSE 5 = 0, SKIP TO Q.S5D

S5C. Including yourself, how many people usually ride in your carpool?
_____ total people in carpool (2-6 people)

IF Q.S5, RESPONSE 6 = 0, SKIP TO Q.S6

S5D. Including yourself, how many people usually ride in your vanpool?
_____ total people in vanpool (5-15 people)

SECTION 2) MODE SWITCH SCREENERS

Determine length of time respondent has used each current alt mode mentioned in Q.S5 or Q.S5Y.

S6. Next, I want to ask you about changes you might have made in your commute. First, how long have you been (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule for your trip to work: **FIRST MODE REPORTED IN Q.S5 OR Q.S5Y)?**
(IF RESPONDENT REPORTS NUMBER OF YEARS, CONVERT TO MONTHS, IF RESPONDENT REPORTS LESS THAN ONE MONTH, RECORD "1 MONTH")

(IF RESPONDENT SAYS "DON'T KNOW," PROMPT) "Do you remember about what year you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **FROM Q.S5 OR Q.S5Y)? CONVERT YEARS TO MONTHS**

(IF MORE THAN ONE MODE WAS NAMED IN Q.S5 OR Q.S5Y, REPEAT Q.S6 FOR EACH MODE) And how long have you been (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **FROM Q.S5 OR Q.S5Y)?**

REPORT DURATION OF MODE USE BELOW FOR ALL MODES CURRENTLY USED

1	drove alone	_____ months
2	carpooled	_____ months
3	vanpooled	_____ months
4	rode bus	_____ months
5	rode train	_____ months
6	walked	_____ months
7	bicycled	_____ months
8	teleworking	_____ months
9	using a CWS	_____ months

TEST FOR MODE CHANGE SINCE 1990 OR SINCE STARTING TO WORK IN ATLANTA

Has respondent started using a new mode since 1990 or since entering Atlanta workforce? If yes, ask Questions 7-10 to determine past modes and past mode frequency.
IF Q.S3 GE 168 AND Q.S6 LT 168 MONTHS FOR ANY MODE, ASK Q.S7
IF Q.S3 LT 168 AND Q.S6 LT Q.S3, FOR ANY MODE, ASK Q.S7
DEFINE "RECENT MODE"
Define one mode from Q.S6 that will be used for further questions
INTERVIEWER: SELECT MODE WITH FEWEST MONTHS USED. IF THERE IS A TIE ON THE NUMBER OF MONTHS, SELECT MODE WITH MOST DAYS. IF TC 1-3 DAYS/MONTH PLUS ANOTHER MODE, SELECT OTHER MODE.

DEFINE "FIRST MODE"
Define mode used longest time from Q.S6 that will be used for question Q.S10A
INTERVIEWER: SELECT MODE WITH MOST MONTHS USED. IF THERE IS A TIE ON THE NUMBER OF MONTHS, SELECT ALT MODE WITH MOST DAYS. SELECT DRIVE ALONE LAST. IF TC 1-3 DAYS/MONTH PLUS ANOTHER MODE, SELECT OTHER MODE.
If no mode change since 1990 or since entering Atlanta workforce, respondent has not made a mode switch. Skip to Q.S9A to define previous days worked, then skip to Q.S11 to test for frequency switches for current modes.
IF Q.S3 GE 168 AND Q.S6 GE 168 MONTHS FOR ALL MODES, SKIP TO Q.S9A
IF Q.S3 LT 168 AND Q.S6 EQ Q.S3, FOR ALL MODES, SKIP TO Q.S9A

Past Commute Travel Data for Mode Switchers

S7. Now think about a typical week just before you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **RECENT MODE FROM Q.S6**). What type or types of transportation were you using to travel to work just before you made this change? **(DO NOT READ RESPONSES. ALLOW MULTIPLE RESPONSES FOR RESPONSES 1-9, DO NOT ALLOW MULTIPLE RESPONSES IF RESPONSES 10-11 ARE GIVEN)**

1 Driving alone
2 Carpool
3 Vanpool
4 Bus
5 Train
6 Walk
7 Bicycle
8 Teleworking
9 Compressed work schedule
10 Always/only used (___) **(INSERT RECENT MODE FROM Q.S6, SKIP TO TEST BEFORE Q.S9A)**
11 Did not live or work in Atlanta then **(SKIP TO TEST BEFORE Q.S9A)**

IF Q.S7 = 9, SKIP TO Q.S8A

S8. In a typical week, before you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking: **RECENT MODE FROM Q.S6**), did you work a compressed work schedule?

1 yes (CONTINUE. PROGRAMMER: ADD Q.S7 = 9)
2 no (SKIP TO Q.S9)
3 Don't know/refused (SKIP TO Q.S9)

S8A. What type of compressed schedule did you work? A 4/40, a 9/80, a 3/36, or something else?

1 4/40 - that is, 40 hours in four days with one weekday off each week
2 9/80 - that is, 80 hours in a nine day period with one weekday off every two weeks
3 3/36 - that is, 36 hours in three work days with two weekdays off each week
4 Other (specify) _____

IF Q.S7 = 8, SKIP TO Q.S9A

S9. Before you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, using a compressed work schedule: **RECENT MODE FROM Q.S6**), did you telework one or more days per month on average?

1 yes (ADD Q.S7 = 8)
2 no
3 Don't know/refused

IF Q.S7 = 8 AND RESPONDENT HAS NOT MENTIONED TELEWORKING, ASK

S9TM. Before you you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, using a compressed work schedule: **RECENT MODE FROM Q.S6**), how often did you usually telework?

1 1 – 3 times per month **(RECORD 1 DAY IN RESPONSE "12")**
2 Less than once per month/in emergencies only
3 Other _____

ESTABLISH PAST TRAVEL GRID FOR MODE SWITCHERS

TEST BEFORE Q.S9A

IF Q.S7 = 10, ASK Q.S9A, THEN SKIP TO Q.S11 (If respondent has "always used" his/her current modes, the respondent is not a mode switcher and skips to Question S9A to determine previous days worked per week, then to Q.S11 to test frequency switches)

IF Q.S7 = 11, ASK Q.S9A, RECORD SEVEN DAYS "NOT LIVING/WORKING IN ATLANTA ("14")" IN Q.S10, THEN SKIP TO Q.S11) (If respondent was not in Atlanta workforce before starting to use this(these) modes, the respondent is not a mode switcher and skips to Question 11 to test frequency switches)

S9A. Before you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **RECENT MODE FROM Q.S6**) to work, how many days were you assigned to work in a typical week?

____ days

S10. IF Q.S8A= 2, RECORD ONE DAY FOR Q.S10 RESPONSE "2," THEN ASK
You said that you used to work a 9/80 compressed work schedule. Before you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking: RECENT MODE FROM Q.S6) to work how did you travel to work in the weeks you did not have the compressed work schedule day off? How many days did you usually …?

IF Q.S7 NE 9 OR Q.S8A = 1 OR 3, ASK

At that time, how many days a week did you usually (drive alone, carpool, vanpool, ride the bus, ride the train, walk, bicycle, telework, have a compressed work schedule day off: **FROM Q.S7?**

IF MORE THAN ONE MODE REPORTED IN Q.S7, REPEAT FOR ALL RESPONSES)
And how many days did you usually (drive alone, carpool, vanpool, ride the bus, ride the train, walk, bicycle, telework, have a compressed work schedule day off: OTHER MODES **FROM Q.S7)?**

IF ALL DAYS IN S9A ARE ACCOUNTED FOR BY MODES 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 IN Q.S10, CATI WILL AUTOFILL REMAINING DAYS WITH CODE 13; OTHERWISE CONTINUE ASKING ABOUT MODES)

TOTAL NUMBER OF DAYS REPORTED IN RESPONSES 1, 3, 4, 5, 6, 7, 8, 9 ,10, 11 MUST EQUAL SEVEN. IF ALL MODES FROM Q.S7 HAVE BEEN MENTIONED AND FEWER THAN SEVEN DAYS CODED 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, CODE REMAINING DAYS AS "DID NOT WORK (13)"

	Number of days						
Mode/ Number of days	1	2	3	4	5	6	7
1 had a 4/40 CWS day off	1	-	-	-	-	-	-
2 had a 9/80 CWS day off	1	-	-	-	-	-	-
3 had a 3/36 CWS day off	1	2	-	-	-	-	-
4 drove alone in your car or motorcycle	1	2	3	4	5	6	7
5 carpooled, including carpool w/family	1	2	3	4	5	6	7
6 vanpooled	1	2	3	4	5	6	7
7 rode a bus	1	2	3	4	5	6	7
8 rode a train or subway	1	2	3	4	5	6	7
9 walked	1	2	3	4	5	6	7
10 bicycled	1	2	3	4	5	6	7
11 telecommuted/teleworked (1+ days per week)	1	2	3	4	5	6	7
12 telecommuted/teleworked (1-3 days per month)	1	-	-	-	-	-	-
13 did not work/usual day off	1	2	3	4	5	6	7
14 not living/working in Atlanta before	1	2	3	4	5	6	7

CHECK FOR MULTIPLE MODE SWITCHING

Has respondent used only current modes within the past five years or since entering the Atlanta workforce? If yes, skip to Q.S11. If no, ask Q.S10A to define other modes used.

IF Q.S6 FIRST MODE = Q.S6 RECENT MODE, SKIP TO Q.S11

IF Q.S3 GE 60 AND Q.S6 "FIRST MODE" LT 60, ASK Q.S10A
IF Q.S3 LT 60 AND Q.S6 "FIRST MODE" LT Q.S3, ASK Q.S10A

OTHERWISE, SKIP TO Q.S11

S10A. You said you've been (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **FIRST MODE FROM Q.S6)** for about **(Q.S6 MONTHS FOR FIRST MODE)** months/years.

What type or types of transportation did you use to get to work before you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **FIRST MODE FROM Q.S6)? (DO NOT READ RESPONSES, ACCEPT MULTIPLE MODES)**

1 Driving alone
2 Carpool
3 Vanpool
4 Bus
5 Train
6 Walk
7 Bicycle
8 Teleworking
9 Compressed work schedule
10 Always/only used (___) **(INSERT FIRST MODE FROM Q.S6)**
11 Did not live or work in Atlanta then

SKIP TO Q.S15 (mode switchers are not asked additional questions about changes – they are taken immediately to the Test for Switchers)

SECTION 3) FREQUENCY SWITCH SCREENERS

TEST FOR FREQUENCY CHANGES (asked of respondents who did not switch modes)

S11. Since the time you started (driving alone, carpooling, vanpooling, riding the bus, riding the train, walking, bicycling, teleworking, using a compressed work schedule: **RECENT MODE FROM Q.S6)**, have you increased or decreased the number of days per week you use this option for your commute?

1 Yes, increased/decreased number of days driving alone
2 Yes, increased/decreased number of days carpooling
3 Yes, increased/decreased number of days vanpooling
4 Yes, increased/decreased number of days riding the bus
5 Yes, increased/decreased number of days riding the train
6 Yes, increased/decreased number of days walking
7 Yes, increased/decreased number of days bicycling
8 Yes, increased/decreased number of days teleworking/telecommuting
9 Yes, increased/decreased number of CWS days off
10 No, did not increase/decrease days using any alt mode **(SKIP TO TEST BEFORE Q.S13)**
11 Don't know/Refused **[DO NOT READ] (SKIP TO TEST BEFORE Q.S13)**

ESTABLISH PAST TRAVEL GRID FOR FREQUENCY SWITCHERS

S12. In a typical week, how many days did you usually (drive alone, carpool, vanpool, ride the bus, ride the train, walk, bicycle: **MODES FROM Q.S11)** before you made this change?

IF Q.S11= 8, ASK: How many weekdays did you usually have a compressed schedule day off? **(IF RESPONSE IS "1 DAY OFF EVERY TWO WEEKS, RECORD ONE DAY FOR RESPONSE "2")**

IF Q.S11 = 7, ASK: How often did you usually telework before?

1 5 or more days per week **(RECORD 5 DAYS IN RESPONSE "11")**
2 4 days per week **(RECORD 4 DAYS IN RESPONSE "11")**
3 3 days per week **(RECORD 3 DAYS IN RESPONSE "11")**
4 2 days per week **(RECORD 2 DAYS IN RESPONSE "11")**
5 1 day per week **(RECORD 1 DAY IN RESPONSE "11")**
6 1 – 3 times per month **(RECORD 1 DAY IN RESPONSE "12")**
7 Less than once per month/in emergencies only
8 Other _____

IF ALL DAYS IN S9A ARE ACCOUNTED FOR BY MODES 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 IN Q.S12, CATI WILL AUTOFILL REMAINING DAYS WITH CODE 13; OTHERWISE CONTINUE ASKING ABOUT MODES; ASK) "How did you travel on the other days?"

	Number of days						
Mode/ Number of days	1	2	3	4	5	6	7
1 had a 4/40 CWS day off	1	-	-	-	-	-	-
2 had a 9/80 CWS day off	1	-	-	-	-	-	-
3 had a 3/36 CWS day off	1	2	-	-	-	-	-
4 drove alone in your car or motorcycle	1	2	3	4	5	6	7
5 carpooled, including carpool w/family	1	2	3	4	5	6	7
6 vanpooled	1	2	3	4	5	6	7
7 rode a bus	1	2	3	4	5	6	7
8 rode a train or subway	1	2	3	4	5	6	7
9 walked	1	2	3	4	5	6	7
10 bicycled	1	2	3	4	5	6	7
11 telecommuted/teleworked (1+ days per week)	1	2	3	4	5	6	7
12 telecommuted/teleworked (1-3 days per month)	1	-	-	-	-	-	-
13 did not work/usual day off	1	2	3	4	5	6	7

SKIP TO Q.S15 (frequency switchers are not asked additional questions about changes – they are taken immediately to the Test for Switchers)

SECTION 4) OCCUPANCY SWITCH SCREENERS

TEST BEFORE Q.S13 (test for curent use of carpool)
IF Q.S5 OR Q.S5Y = 5, CONTINUE, OTHERWISE, SKIP TO Q.S15

S13. Again, since the time you started carpooling, have you increased the number of people riding in your carpool, for example, from two people to three?

1 Yes
2 No **(SKIP TO Q.S15)**
3 Don't know/Refused **[DO NOT READ] (SKIP TO Q.S15)**

S14. Including yourself, how many people were in your old carpool?
_____ total people in carpool (2-6 people)

SECTION 5) PAST TRAVEL GRID

S15. **(AUTOMATIC FILL BY CATI, NO QUESTION ASKED)**

REPEAT GRID FROM Q.S10 OR Q.S12, IF GRIDS WERE COMPLETED
IF Q.S11 = 10 OR DK, REPEAT GRID FROM Q.S5 OR Q.S5Y
IF Q.S10 = "Not Living/Working in Atlanta" & Q.S11 = 10 or DK, THEN Q.S15 = response 14, seven days

	Days using mode						
Mode/ Number of days	1	2	3	4	5	6	7
1 had a 4/40 CWS day off	1	-	-	-	-	-	-
2 had a 9/80 CWS day off	1	-	-	-	-	-	-
3 had a 3/36 CWS day off	1	2	-	-	-	-	-
4 drove alone in your car or motorcycle	1	2	3	4	5	6	7
5 carpooled, including carpool w/family	1	2	3	4	5	6	7
6 vanpooled	1	2	3	4	5	6	7
7 rode a bus	1	2	3	4	5	6	7
8 rode a train or subway	1	2	3	4	5	6	7
9 walked	1	2	3	4	5	6	7
10 bicycled	1	2	3	4	5	6	7
11 telecommuted/teleworked (1+ days per week	1	2	3	4	5	6	7
12 telecommuted/teleworked (1-3 days per month)	1	-	-	-	-	-	-
13 did not work/usual day off	1	2	3	4	5	6	7
14 not working/living in Atlanta then	1	2	3	4	5	6	7

SECTION 6) SWITCHER TESTS

FIRST PRIORITY - TEST FOR ALT MODE SWITCHERS = RESPONDENTS WHO STARTED USING A NEW ALTERNATIVE MODE, INCREASED USE OF AN ALTERNATIVE MODE, OR INCREASED CARPOOL OCCUPANCY
(Note: Switchers will include respondents who increased total days using alt modes because they increased work days (from Q.S4C to Q.S9A) – e.g., previously working 4 days and carpooling 4 days, now working five days and carpooling five days)
(Note: Some respondents also could increase total DA days, if they switch from one alt mode to another alt mode, e.g., from 5 days of CP to 3 days TR and 2 days DA)

Mode or frequency switchers
DEFINE AS ALT MODE SWITCHER:
IF Q.S5/Q.S5Y, RESPONSE 1 > Q.S15, RESPONSE 1
IF Q.S5/Q.S5Y, RESPONSE 2 > Q.S15, RESPONSE 2
IF Q.S5/Q.S5Y, RESPONSE 3 > Q.S15, RESPONSE 3
IF Q.S5/Q.S5Y, RESPONSE 5 > Q.S15, RESPONSE 5
IF Q.S5/Q.S5Y, RESPONSE 6 > Q.S15, RESPONSE 6
IF Q.S5/Q.S5Y, RESPONSE 7 > Q.S15, RESPONSE 7
IF Q.S5/Q.S5Y, RESPONSE 8 > Q.S15, RESPONSE 8
IF Q.S5/Q.S5Y, RESPONSE 9 > Q.S15, RESPONSE 9
IF Q.S5/Q.S5Y, RESPONSE 10 > Q.S15, RESPONSE 10
IF Q.S5/Q.S5Y, RESPONSE 11 > Q.S15, RESPONSE 11
IF Q.S5/Q.S5Y, RESPONSE 12 > Q.S15, RESPONSE 12

Occupancy Switchers
DEFINE AS ALT MODE SWITCHER:
IF Q.S5/Q.S5Y, RESPONSE 5 = Q.S15, RESPONSE 5 AND Q.S14 NE Q.S5C

SECOND PRIORITY – TEST FOR DRIVE ALONE SWITCHERS = RESPONDENTS STARTED DRIVING ALONE OR INCREASED FREQUENCY OF DRIVING ALONE AND DID NOT MAKE A SWITCH TO AN ALT MODE
(Note: DA Switchers will include respondents who increased total days driving alone because they increased work days (from Q.S4C to Q.S9A) – e.g., previously working 4 days and DA 4 days, now working five days and DA five days)

DEFINE AS DRIVE ALONE SWITCHER:
IF Q.S5/Q.S5Y, RESPONSE 4 > Q.S15, RESPONSE 4
AND
Q.S5/Q.S5Y, RESPONSE 1 LE Q.S15, RESPONSE 1 AND
Q.S5/Q.S5Y, RESPONSE 2 LE Q.S15, RESPONSE 2 AND
Q.S5/Q.S5Y, RESPONSE 3 LE Q.S15, RESPONSE 3 AND
Q.S5/Q.S5Y, RESPONSE 5 LE Q.S15, RESPONSE 5 AND
Q.S5/Q.S5Y, RESPONSE 6 LE Q.S15, RESPONSE 6 AND
Q.S5/Q.S5Y, RESPONSE 7 LE Q.S15, RESPONSE 7 AND
Q.S5/Q.S5Y, RESPONSE 8 LE Q.S15, RESPONSE 8 AND
Q.S5/Q.S5Y, RESPONSE 9 LE Q.S15, RESPONSE 9 AND
Q.S5/Q.S5Y, RESPONSE 10 LE Q.S15, RESPONSE 10 AND

Q.S5/Q.S5Y, RESPONSE 11 LE Q.S15, RESPONSE 11 AND
Q.S5/Q.S5Y, RESPONSE 12 LE Q.S15, RESPONSE 12

THIRD PRIORITY – TEST FOR RESPONDENTS WHO DECREASE WEEKLY VEHICLE TRIPS BY SHIFTING FROM FULL-TIME TO PART-TIME SCHEDULES

DEFINE AS "REDUCED DAYS SWITCHERS"
IF Q.S4C LT Q.S9A AND Q.S5/Q.S5Y, RESPONSE 4 LE Q.S15 RESPONSE 4
AND Q.S5/Q.S5Y, RESPONSE 5 LE Q.S15 RESPONSE 5
AND Q.S5/Q.S5Y, RESPONSE 6 LE Q.S15 RESPONSE 6

THIRD PRIORITY – TEST FOR NON-SWITCHERS = RESPONDENTS DID NOT MAKE ANY CHANGES

DEFINE AS NON-SWITCHER:

Same days assigned and no change from previous to current grid
IF Q.S4C = Q.S9A AND Q.S5/Q.S5Y = Q.S15 FOR RESPONSES 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, AND 13

Not currently carpooling and not living or working in Atlanta before starting mode and no frequency or occupancy change
IF Q.S5/Q.S5Y NE 5 AND Q.S15 = 14 ("NOT LIVING/WORKING IN ATLANTA BEFORE")
AND Q.S11 = 10 OR DK

Currently carpooling and not living or working in Atlanta before starting mode and no frequency or occupancy change
IF Q.S5/Q.S5Y = 5 AND Q.S15 = 14 ("NOT LIVING/WORKING IN ATLANTA BEFORE") AND Q.S11 = 10 OR DK AND Q.S14 EQ Q.S5C

CALCULATION OF CURRENT WEEKLY VEHICLE TRIPS (CVT)

FOR EACH ALT MODE SWITCHER, DA SWITCHER, AND NON-SWITHER RESPONDENT, CALCULATE CVT

CVT =
2 X ((NUMBER OF DAYS DRIVING ALONE (Q.S5 OR Q.S5Y, RESPONSE "4")
+ (NUMBER OF DAYS CARPOOLING (Q.S5 OR Q.S5Y, RESPONSE "5") / Q.S5C)
+ (NUMBER OF DAYS VANPOOLING (Q.S5 OR Q.S5Y, RESPONSE "6") / Q.S5D)
- 0.5 X (NUMBER OF 9/80 CWS DAYS OFF (Q.S5 OR Q.S5Y, RESPONSE "2")
- 0.5 X (NUMBER OF TC/TW DAYS 1-3 TIMES PER MONTH (Q.S5 OR Q.S5Y, RESPONSE "12"))

CALCULATION OF PREVIOUS WEEKLY VEHICLE TRIPS (PVT)

FOR EACH SWITCHER (ALT MODE AND DA), CALCULATE PVT

PVT =
2 X ((NUMBER OF DAYS DRIVING ALONE (Q.S15, RESPONSE "4")
+ (NUMBER OF DAYS CARPOOLING (Q.S15, RESPONSE "5") / Q.S14 OR Q.S5C)
+ (NUMBER OF DAYS VANPOOLING (Q.S15, RESPONSE "6") / Q.S5D)

- 0.5 X (NUMBER OF 9/80 CWS DAYS OFF (Q.S15, RESPONSE "2")
- 0.5 X (NUMBER OF TC/TW DAYS 1-3 TIMES PER MONTH (Q.S15, RESPONSE "12"))

BRANCHING AND QUOTAS FOR REMAINING QUESTIONS

IF RESPONDENT IS AN ALT MODE SWITCHER, GO TO Q1 UNTIL 400 INTERVEWS HAVE BEEN COMPLETED

IF RESPONDENT IS A DRIVE ALONE SWITCHER, GO TO Q1, UNTIL 200 INTERVIEWS HAVE BEEN COMPLETED

IF RESPONDENT IS A NON-SWITCHER, GO TO Q6, UNTIL 400 INTERVIEWS HAVE BEEN COMPLETED.

SECTION 7) SWITCHER QUESTIONS

Q1 – Q4 ASKED ONLY OF SWITCHERS

Q6 – Q9 ASKED OF SWITCHERS AND NON-SWITCHERS

IF ALT MODE SWITCHER, SAY, "You said you've changed the type of transportation you use to get to work or changed how often you use various types of transportation. THEN CONTINUE WITH Q1

IF OCCUPANCY SWITCHER, SAY "You said you've changed the number of people who ride in your carpool. THEN CONTINUE WITH Q1

IIF DRIVE ALONE SWITCHER, SAY, "You've said you've increased the number of days per week you drive alone to work. THEN CONTINUE WITH Q1

1. What influenced your decision to make this change in how you get to work? **[DO NOT READ, ALLOW MULITPLE RESPONSES]**

   1 Moved my home or changed jobs, spouse changed jobs
   2 Concerned about the environment
   3 Didn't want to drive, traffic was worse
   4 Preferred to drive
   5 Didn't have access to a car/truck for regular use

6 Got access to car/truck for regular use
7 Wanted to save money
8 Wanted to save time
9 New type of transportation became available
10 New mass transit line became available
11 Transit service not available anymore
12 Parking not easily available at worksite
13 Parking cost too high
14 Received carpool/vanpool/transit subsidy
15 Received other commute service from employer
16 Received commute service from another organization (specify org _____)
17 Saw/heard a radio, TV, or newspaper ad about commuting, commute options
18 Saw/heard a news story about commuting, commute options
19 Carpool/vanpool broke up, lost carpool/vanpool partners
20 Didn't like using previous type of transportation
21 Spouse/family member, friend, co-worker wanted to carpool
22 Other (specify) _____

IF Q.1 NE 15, SKIP TO Q.3

2. What was the commute service you received from your employer **[DO NOT READ, ALLOW MULTIPLE RESPONSES]?**

1 Carpooling/vanpooling information
2 Ridematching service / matchlist
3 Transit information or schedules
4 Guaranteed Ride Home (emergencies or overtime)
5 Preferential parking for carpools/vanpools
6 Discounted transit passes
7 Vanpool/carpool subsidy or cash incentive
8 Prizes or contests for employees who do not drive alone
9 Bicycle racks /other bike services
7 Shuttle bus to MARTA or other location
8 Employer implemented telework policy
9 Transportation fair
10 Other _____

IF Q.1 NE 16, SKIP TO Q.4

3. What was the commute service you received from [name of organization **FROM Q.1] [DO NOT READ, ALLOW MULTIPLE RESPONSES]?**

1 Carpooling/vanpooling information
2 Ridematching service / matchlist
3 Transit information or schedules
4 Guaranteed Ride Home (emergencies or overtime)
5 Preferential parking for carpools/vanpools
6 Discounted transit passes
7 Vanpool/carpool subsidy or cash incentive

8 Prizes or contests for employees who do not drive alone
9 Bicycle racks /other bike services
10 Shuttle bus to MARTA or other location
11 Teleworking information
12 Transportation fair
14 Other _____

IF RESPONDENT IS A DRIVE ALONE SWITCHER, SKIP TO Q6

IF Q.1 NE 14, 15, OR 16, CONTINUE, OTHERWISE SKIP TO Q6

4. Was this change influenced or encouraged by any information or service provided to you by your employer or by an organization that provides commute information or services?

1 yes, information or service influenced change, somewhat influenced change (SKIP TO Q4B)
2 no, information or service did not influence change (CONTINUE)
3 didn't receive any services or information (SKIP TO Q6)

4A. Did any commute information or service you received ASSIST you to make this change?

1 yes
2 no (SKIP TO Q6)
3 DK/Ref (SKIP TO Q6)

4B. What was the information or service? **[DO NOT READ, ALLOW MULTIPLE RESPONSES]**

1 Carpooling/vanpooling information
2 Ridematching service/matchlist
3 Transit information or schedules
4 Guaranteed Ride Home (emergencies or overtime)
5 Preferential parking for carpools/vanpools
6 Discounted transit passes
7 Vanpool/carpool subsidy or cash incentive
8 Prizes or contests for employees who do not drive alone
9 Bicycle racks /other bike services
10 Shuttle bus to MARTA or other location
11 Teleworking information
12 Transportation fair
13 Other _____

ADDITIONAL TRAVEL QUESTIONS – ASKED OF ALT MODE SWITCHERS, DA SWITCHERS, AND NON-SWITCHERS

IF Q.S5/Q.S5Y NE 5, 6, 7, OR 8, SKIP TO Q.8

6. Now I have just a few more questions about your commute. How do you get to the location where you meet your [carpool, vanpool, bus, or train, **FROM Q.S5/Q.S5Y**]? **[IF RESPONDENT USES MORE THAN ONE OF THESE TYPES OF TRANSPORTATION, ASK ABOUT TYPE USED MOST OFTEN]**

1 Drive alone
2 Dropped off/carpool
3 Walk
4 Bicycle
5 Ride a bus
6 Always picked up at home (SKIP TO Q8)
7 Always carpool/vanpool driver (leave from home)
8 Other (specify) _____

7. How far do you travel to this location?

1 Less than one mile
2 1 mile
3 More than 1 mile (specify) _____ miles

8. How many total miles do you travel from home to your usual work location, one-way? (We are looking for the number of miles from your home to your work location.)
_____ miles

9. On average, how many minutes does it take you to make this trip?
_____ minutes

DEMOGRAPHICS – ASKED OF ALL RESPONDENTS

IF Q.S5/Q.S5Y, RESPONSE 4 = Q.S4C, CODE Q10 = 1, THEN SKIP TO Q11

10. Finally, I have just a few more questions for background information only. Do you have a car available to you on a regular basis for your travel to work?

1 Yes
2 No
3 Available sometimes
4 Not sure (VOLUNTEERED)
5 Refused (VOLUNTEERED)

11. Which of the following best describes your occupation?

1 Professional
2 Company manager, official, or business owner
3 IT or technical
4 Clerical/Sales
5 Service industry worker
6 Operator/Laborer/Manufacturing

7 Craftsman/Foreman
8 Farming/Ranching/Agriculture
9 Other (SPECIFY) _____
10 Don't know/Refused **[DO NOT READ]**

12. Which of the following best describes your employer? **[ROTATE AND READ]**

1 My employer is a private or non-government organization **(SKIP TO Q13)**
2 My employer is a local, state or federal government organization **(ASK Q.12A)**
3 Other (SPECIFY) _____ **(DO NOT READ, SKIP TO Q.13)**

12A Do you work for a . . . (READ CHOICES; ONE ANSWER ONLY)
1 Local government
2 State government
3 Federal government
4 Other **[DO NOT READ]** _____
5 Don't know/Refused **[DO NOT READ]**

13. Please stop me when I reach the group that includes your age. Are you . . . (READ CHOICES)

1	18 – 24	7	50 - 54
2	25 – 29	8	55 - 59
3	30 – 34	9	60 - 64
4	35 – 39	10	65 - 69
5	40 – 44	11	70 - 74
6	45 – 49	12	75 and older
		13	Refused **(DO NOT READ)**

14. WHAT IS YOUR TOTAL ANNUAL FAMILY INCOME? PLEASE STOP ME WHEN I REACH THE GROUP THAT INCLUDES YOUR INCOME. (READ CATEGORIES)

1 UNDER $10,000
2 $10,000 BUT LESS THAN $20,000
3 $20,000 BUT LESS THAN $30,000
4 $30,000 BUT LESS THAN $40,000
5 $40,000 BUT LESS THAN $50,000
6 $50,000 BUT LESS THAN $60,000
7 $60,000 BUT LESS THAN $70,000
8 $70,000 BUT LESS THAN $80,000
9 $80,000 BUT LESS THAN $90,000
10 $90,000 BUT LESS THAN $100,000
11 $100,000 OR MORE
12 REFUSED **(DO NOT READ)**

15. What is your MAIN ethnic or racial heritage? **(READ CATEGORIES -- ACCEPT ONE RESPONSE ONLY) [IF THEY GIVE MORE THAN ONE ANSWER, ASK THEM WHICH ONE THEY ASSOCIATE WITH MOST]**

1 African American / Black American
2 American Indian / Native American
3 Asian American / Pacific Islander
4 Caucasian / White
5 Hispanic American / Latino
6 Mixed (DO NOT READ)
7 Other **(SPECIFY) (DO NOT READ)** _____
8 Refused **(DO NOT READ)**

16. Those are all my questions. May I have your first name in case my supervisor needs to call you back to verify my work? _____

THANK YOU FOR YOUR TIME!

Appendix A-2

Method 1 - All Commute Changes during 14 Year Evaluation Period

Population	1,859,461	(based on 2000 Census Data)
PVT	8.21	
CVT	8.07	
VTR Factor	(0.03)	
Trips Reduced	(53,813)	
Distance	17.0	
VMT Reduced	(913,203)	
DA %	3%	
DA dist	2.6	
Net Trips	(52,467)	
Net VMT	(909,690)	

Emissions Reduced	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx Reduced	(842,373)	(842.37)	(0.929)
VOC Reduced	(1,021,582)	(1021.58)	(1.126)

Method 1 - All Commute Changes during 7 Year Evaluation Period

Population	1,859,461	(based on 2000 Census Data)
Start/switch modes	1,164,538	62.6% of total population
PVT	7.66	
CVT	7.35	
VTR Factor	(0.06)	
Trips Reduced	(71,363)	
Distance	17.3	
VMT Reduced	(1,235,292)	
DA %	4%	
DA dist	2.6	

Net Trips	(68,794)
Net VMT	(1,228,584)

	Grams (Daily)	KG (Daily)	Tons (Daily)
Emissions Reduced	(1,137,668)	(1137.67)	(1.254)
NOx Reduced	(1,379,699)	(1379.70)	(1.521)
VOC Reduced			

Method 2 - All Alternative Mode Commute Changes during 14 Year Evaluation Period and Attribution to VMEPs

Population	1,859,461	(based on 2000 Census Data)
Switch to alt modes	415,656	22.4% of total population
PVT	8.27	
CVT	4.87	
VTR Factor	(0.68)	
Trips Reduced	(282,280)	
Distance	18.3	
VMT Reduced	(5,168,552)	
Influence		
Tier 1	22%	
Tier 2	40%	
Tier 1 Placements	92,276	
Tier 2 Placements	167,925	
Total	260,201	
Tier 1 VT	(62,666)	
Tier 2 VT	(114,041)	
Total	(176,707)	
Tier 1 VMT	(1,147,419)	
Tier 2 VMT	(2,088,095)	
Total	(3,235,514)	

Drive Alone %	10%
Drive Alone Distance	3.2
Net Trips	(253,488)
Net VMT	(5,075,932)

Tier 1 VMT	(1,126,857)
Tier 2 VMT	(2,050,677)
Total	(3,177,534)

Tier 1	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx	(1,043,470)	(1043.47)	(1.150)
VOC	(1,265,460)	(1265.46)	(1.395)

Tier 2	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx	(1,898,927)	(1898.93)	(2.093)
VOC	(2,302,910)	(2302.91)	(2.539)

Total	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx	(2,942,396)	(2942.40)	(3.243)
VOC	(3,568,370)	(3568.37)	(3.933)

Method 2 - All Alternative Mode Commute Changes during 7 Year Evaluation Period and Attribution to VMEPs

Population	1,859,461	(based on 2000 Census Data)
Switch to alt modes	415,656	22.4% of total population
Switch w/in 7 years	386,676	20.8% of total population
PVT	8.24	
CVT	4.88	
VTR Factor	(0.67)	
Trips Reduced	(259,645)	
Distance	18.7	
VMT Reduced	(4,860,558)	
Influence		
Tier 1	23%	
Tier 2	42%	
Tier 1 Placements	89,709	
Tier 2 Placements	162,404	
Total	252,113	
Tier 1 VT	(60,238)	
Tier 2 VT	(109,051)	

Total	(169,289)
Tier 1 VMT	(1,127,649)
Tier 2 VMT	(2,041,434)
Total	(3,169,084)
Drive Alone %	10%
Drive Alone Distance	3.2
Net Trips	(233,421)
Net VMT	(4,775,385)
Tier 1 VMT	(1,107,889)
Tier 2 VMT	(2,005,662)
Total	(3,113,551)

Tier 1	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx	(1,025,905)	(1025.91)	(1.131)
VOC	(1,244,160)	(1244.16)	(1.371)

Tier 2	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx	(1,857,243)	(1857.24)	(2.047)
VOC	(2,252,358)	(2252.36)	(2.483)

Total	**Grams (Daily)**	**KG (Daily)**	**Tons (Daily)**
NOx	(2,883,148)	(2883.15)	(3.178)
VOC	(3,496,518)	(3496.52)	(3.854)

Tier 1 (Weighted)	14-Year (Percent)	7-Year (Percent)
Received carpool, vanpool, or transit subsidy	0.5	0.6
Received other commute service from employer	2.2	2.4
Job or employer offered or required it	3.7	3.7
Received other commute service from organization that provides commute information or services	15.1	15.9
Saw, heard, or read radio, TV, or newspaper ad about commuting, commute options*	0	0
New mass transit line became available	0.7	0.6
Total	22.2	23.2

Tier 2 (Weighted)	14-Year (Percent)	7-Year (Percent)
Concerned about the environment	2.5	2.7
Didn't want to drive, traffic was worse	9	9.2
Wanted to save money	8.6	9
Wanted to save time	11.3	11.7
New type of transportation became available	1.3	1.4
Spouse or family member, friend, coworker wanted to carpool	6	6.2
Like being able to work at home and having more time with family	1.7	1.8
Total	40.4	42

Appendix B

Atlanta TDM Program
FY2004 Travel and Emission Impacts Summary

The Georgia Department of Transportation (GDOT) is leading an effort to coordinate and maximize the effectiveness of Transportation Demand Management (TDM) programs across the state of Georgia. TDM programs are designed to reduce traffic congestion and improve air quality. As part of the effort, GDOT, in cooperation with the U.S. Department of Transportation, sponsors the evaluation of TDM programs.

The Center for Transportation and the Environment (CTE) conducts the evaluation of the Atlanta region's TDM programs on behalf of GDOT. CTE calculates the number of commuters using alternative modes of transportation and the corresponding reduction in vehicle trips, vehicle miles traveled, and harmful ozone-causing emissions. Collectively, these measures are referred to as program impacts. Each year CTE calculates the Atlanta region's TDM program impacts and thereby the region's contributions to reducing traffic congestion and improving air quality. The impact estimate is considered lower bound because it does not capture all activities associated with TDM programs, which would be cost prohibitive, nor does it capture the indirect effects of TDM programs.

CTE uses several data sources to determine mode specific annual program impacts. Data sources include programs like 1-87-RIDEFIND, the Discount Transit Pass Program, and The Clean Air Campaign Cash for Commuters Program. CTE conducts surveys of these programs on a periodic basis to gather information to calculate impacts. The surveys, combined with program participant data, are used to determine trips reduced and the reduction in miles traveled. Once the reduction in miles traveled is determined, CTE is able to calculate the amount of pollution reduced using annual emission factors for the region provided by the Georgia Environmental Protection Division.

Several of the programs provide a coordinated network of data sources. As a result, the potential exists for duplicative participant data. CTE determines a primary data source for each mode and then discounts any potential impacts as necessary to avoid the double counting of impacts.

In 2004, CTE calculated carpool, vanpool, and transit impacts from the following programs:

- 1-87-RIDEFIND Regional Rideshare Program
- Regional and Local Vanpool Incentive Programs
- Regional and Local Discount Transit Pass Programs
- The Clean Air Campaign Cash for Commuters Program

The collective impacts are as follows:

Commuters using Alternative Modes	Vehicle Trips Reduced	Vehicle Miles Reduced	NOx Reduced (tons/reduced)	VOC Reduced (tons/reduced)
43,575	41,021	885,791	0.7219	0.8755

The table below provides a summary of the impacts by mode for each program. Appendix 1 provides further detail for calculating program specific impacts. The detailed calculation steps for each program are available upon request.

Atlanta TDM Program 2004 Travel and Emission Impacts Summary Table

	Total 2004 Impacts	1-87-RIDEFIND			Vanpool Incentive Programs	Discount Transit Pass Programs	Cash for Commuters (Carpool, Vanpool, Transit)		
		Carpool	Vanpool	Transit	Vanpool	Transit	Wave 1	Wave 2	Wave 3
Placements									
New		3,719	490		562	4,430			
Retained		3,174	175		1,511	25,065			
Total	**43,575**	6,893	665	4,449	2,073	29,495			
VT Reduced									
New		(1,794)	(368)		(669)	(5,446)			
Retained		(2,054)	(239)		(1,798)	(20,508)			
Total	**(41,021)**	(3,848)	(607)	(5,153)	(2,467)	(25,955)	(852)	(1,189)	(950)
VMT REDUCED									
New		(48,270)	(11,555)		(23,511)	(108,265)			
Retained		(55,241)	(7,517)		(63,246)	(387,356)			
Total	**(885,791)**	(103,511)	(19,072)	(107,833)	(86,757)	(495,621)	(20,788)	(29,016)	(23,192)
Emissions Reduced									
NOx	**(0.7219)**	(0.0981)	(0.0163)	(0.1101)	(0.0748)	(0.3556)	(0.0191)	(0.0267)	(0.0213)
VOC	**(0.8755)**	(0.1189)	(0.0197)	(0.1335)	(0.0907)	(0.4313)	(0.0232)	(0.0323)	(0.0259)
Total	**(1.5974)**	(0.2170)	(0.0360)	(0.2436)	(0.1655)	(0.7869)	(0.0423)	(0.0590)	(0.0472)